

*S*  
*H*  
the amino acid sequence of mature EPSPS sequence, to encode serine.

43. A nucleic acid molecule as claimed in claim 42 wherein the modified nucleic acid molecule is of maize origin.

44. A nucleic acid having the sequence of SEQ ID NO: 4.

*H*  
*45.* A vector comprising the following components, which are operably associated in the direction of transcription:

(a) a promoter functional in a plant cell; and

*modified Plant DNA Molecule*

(b) the nucleic acid of claim 42.

*D1*  
*cont*  
46. A vector of claim 45 further comprising nucleic acid encoding a chloroplast transit peptide operably associated with, and in the order of transcription between, the promoter functional in a plant cell and the nucleic acid of claim 42.

47. A plant cell comprising a vector comprising the following components, which are operably associated in the direction of transcription:

(a) a promoter functional in a plant cell;

(b) nucleic acid encoding a chloroplast transit peptide;

*S*  
*47*  
(c) a modified nucleic acid molecule of maize origin encoding an EPSPS enzyme, the modifications comprising:

a first modification, at the position which normally encodes a threonine at position 102 of the amino acid sequence of mature EPSPS sequence, to encode isoleucine; and

a second modification, at the position which normally encodes a proline at position 106 of the amino acid sequence of mature EPSPS sequence, to encode serine; and

(d) an untranslated transcription termination signal region.

48. A plant cell of claim 47 which is a monocot with increased tolerance to glyphosate herbicides.

49. A plant cell of claim 47 which is a dicot with increased tolerance to glyphosate herbicides.

50. A transgenic plant comprising a vector comprising the following components, which are operably associated in the direction of transcription:

(a) a promoter functional in a plant cell;

*D1*

(b) nucleic acid encoding a chloroplast transit peptide;

(c) a modified nucleic acid molecule of plant origin encoding an EPSPS enzyme, the modifications comprising:

a first modification, at the position which normally encodes a threonine at position 102 of the amino acid sequence of mature EPSPS sequence, to encode isoleucine; and

a second modification, at the position which normally encodes a proline at position 106 of the amino acid sequence of mature EPSPS sequence, to encode serine; and

(d) an untranslated transcription termination signal region.

*Cust*

51. A transgenic plant of claim 50 which is a monocot with increased tolerance to glyphosate herbicides.

52. A transgenic plant of claim 50 which is a dicot with increased tolerance to glyphosate herbicides.

53. A method for selectively controlling plants which method comprises the steps of:

a) planting crop seeds or plants which have increased glyphosate tolerance as a result of a chimeric gene being inserted into said crop seed or plant, said chimeric gene having

(i) a promoter region functional in a plant cell; and

(ii) a nucleic acid molecule of plant origin encoding a modified EPSPS enzyme, the modifications comprising:

a first modification, at the position which normally encodes a threonine at position 102 of the amino acid sequence of mature EPSPS sequence, to encode isoleucine; and

a second modification, at the position which normally encodes a proline at position 106 of the amino acid sequence of mature EPSPS sequence, to encode serine; and

(iii) an untranslated transcription termination signal region; and

b) applying to said plants a sufficient amount of glyphosate to control said untransformed plants without significantly affecting said plants that comprise the chimeric gene.

---

## REMARKS

Applicants respond to the final rejection of June 14, 2001, by replacement of the abstract and submission of new claims. Also, disclosure of information from a related legal proceedings is